

CLAIMS

1. A rotational angle sensor, comprising:
 - a magnetic detector for detecting a rotational angle of a rotor based on a magnetic field generated between a pair of magnets respectively disposed across the rotational axis of the rotor;
 - each main terminal connected with each connection terminal of the magnetic detector; and
 - a holder member for holding the magnetic detector and magnetic-detector-side connection portions of the respective main terminals,
wherein the magnetic detector, the main terminals and the holder member are formed into an assembly to be constructed as a sensor assembly.
2. The rotational angle sensor as in claim 1, wherein each connection terminal of the magnetic detector and the respective main terminals are connected by welding.
3. The rotational angle sensor as in claim 1 or 2, wherein the holder member is provided with guiding portions for guiding the magnetic detector to a predetermined assembled position.
4. The rotational angle sensor as in any one of claims 1 to 3, wherein a potting material is potted into the holder member so as to cover the magnetic detector and the connection portions between each connection terminal of the magnetic detector and the respective main terminals.
5. The rotational angle sensor as in claim 4, wherein the rotational angle sensor is provided with capacitors as a preventive measure for discharge of positive charges, and the capacitors are connected between one and another of the respective main terminals and covered with the potting material.
6. The rotational angle sensor as in claim 5, wherein the capacitors are disposed on the same side as the connection side of the respective main terminals connected with the magnetic detector.

7. The rotational angle sensor as in claim 5 or 6, wherein housed portions of the respective main terminals for connecting the magnetic detectors and the capacitors are formed in stepped manner with exposed portions of the respective main terminals for the external terminals, such that the exposed portions are disposed outside of the holder member, while the housed portions are housed with the magnetic detector and the capacitors in the holder member in such a manner that the housed portions are closer to the bottom in the holder member than the exposed portions.

8. The rotational angle sensor as in any one of claims 5 to 7, wherein the capacitors are lead-type capacitors having leads.

9. The rotational angle sensor as in claim 8, wherein the leads of the capacitors are connected with the capacitor connections of the main terminals by welding.

10. The rotational angle sensor as in claim 4, wherein the magnetic detectors are housed in the holder member such that a bottom surface within the holder member is formed in a predetermined spaced relationship to the contour shape of the magnetic detectors facing to the bottom surface.

11. The rotational angle sensor as in any one of claims 1 to 10, wherein the rotational angle sensor is provided with a resin molded body, which is resin molded in such a manner that the sensor assembly is insert molded with subterminals, which are connected to the terminal connections of the respective main terminals and connectable with terminal pins of an external connector.

12. The rotational angle sensor as in claim 11, wherein the holder member includes sidewalls, which is provided with reinforcing ribs for inhibiting deformation of the sidewalls caused by molding pressure when the resin molded body is resin molded.

13. The rotational angle sensor as in claim 11 or 12, wherein the holder member is provided on an outer surface thereof with a stepped surface intersecting an axis such that a resin portion of the resin molded body surrounding the holder member is prevented from burring on the same plane as the stepped surface.

14. The rotational angle sensor as in claim 13, wherein the stepped surface of the holder member is provided with retaining recesses, into which the resin portion of the resin molded body flows.

15. A method for manufacturing a rotational angle sensor including a magnetic detector for detecting a rotational angle of a rotor based on a magnetic field generated between a pair of magnets respectively disposed across the rotational axis of the rotor, each main terminal connected with each connection terminal of the magnetic detector, and a holder member for housing the magnetic detector and magnetic-detector-side connection portions of the respective main terminals, the method comprising the steps of:

press molding an electrically conductive sheet stock so as to form a main terminal unit in which the respective main terminals are connected via tie bars;

connecting each connection terminal of the magnetic detector with the main terminal unit so as to form a main terminal assembly;

disposing the magnetic detector of the main terminal assembly and the magnetic-detector-side connection portions of the respective main terminals to be housed into the holder member; and

removing the tie bars from the main terminal unit.

16. The method for manufacturing a rotational angle sensor as in claim 15, wherein the connections between the main terminal unit and the respective connection terminals of the magnetic detector are disposed in a row, while a welding head for welding each connection terminal of the magnetic detector and the respective main terminals at the connections is sequentially moved in the row direction as performing the welding.

17. A throttle control device for driving a throttle valve, which rotatably opens and closes an intake air passageway provided in a throttle body by a motor, so as to control intake air flow flowing through the intake air passageway, wherein the throttle control device includes any one of the rotational angle sensors as in claims 1 to 14 so as to be constructed to detect opening degrees of the throttle valve.